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## Effect of jackfruit seed meal on growth performance of Giriraja chicken

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#### Abstract

An experimental trial was conducted to evaluate the effect of Jackfruit seed meal on growth performance of Giriraja chicken. 120 day old chicks were randomly distributed into four experimental diets in a Randomized block design. Each treatment group was replicated into five with 6 birds per replicate. In treatment T<sub>1</sub> no Jackfruit seed meal was supplemented while in treatment T<sub>2</sub> 2.5% Jackfruit seed meal, in treatment T<sub>3</sub> 5% Jackfruit seed meal and in treatment T<sub>4</sub> 7.5% Jackfruit seed meal was supplemented. The duration of experimental trial was 90 days. There was significant ( $p < 0.05$ ) increase in body weight in treatment T<sub>2</sub> which was supplemented with 2.5% Jackfruit seed meal than T<sub>3</sub>, T<sub>4</sub> and T<sub>1</sub>, after 90 days of Jackfruit seed meal feeding. From present study it can be concluded that feeding of Jackfruit seed meal @ 2.5% improved body weight of Giriraja chicken.

**Keywords:** Jackfruit, Giriraja and body weight

#### Introduction

Indian rural poultry farming became popular by creating and dispersing the "Giriraja" synthetically coloured dual-purpose strain. Giriraja represents the king of the forest birds in symbolism. This variety was developed to imitate native birds. It is strong and resilient and can easily adapt to any environmental condition. With the exception of the mundane rank, Giriraja produces high-quality meat and eggs that can last like any native stock. Giriraja is in other words, a miraculous bird. The phrase "feed supplement" is used broadly to refer to all items that could be added to the ration in order to achieve certain unique effects, excluding those that are typically referred to as feed stuffs (Feltwell and Fox, 1979) [4]. However, the feed supplement (AAFCO) is the feed used in conjunction with another feed to enhance the nutritional performance of the whole feed. Over the years, feed additives and supplements have helped to achieve the highest production efficiencies. Such feed formulation and feeding practices make the most of the potential of birds. To promote body weight gain and increase feed efficiency, grill chickens are currently fed a variety of feed additives. However, availability of quality feed at the reasonable cost is key to successful poultry operation (Basak *et al.*, 2002) [2].

#### Methodology

The 120, day old Giriraja chicks were procured from Government Hatchery, Kolhapur. Each bird was weighed on arrival and randomly assigned to four different dietary treatment groups *viz.* T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub> and T<sub>4</sub> with six birds in each group using Randomized block design. All chicks were properly reared on deep liter system. Feeds and water were provided *ad libitum* throughout the experimental period.

#### Treatment details

The dietary treatments were of one basal control (T<sub>1</sub>), supplemented with 2.5%/kg Jackfruit seed meal (T<sub>2</sub>), Supplemented with 5%/kg Jackfruit seed meal (T<sub>3</sub>) and supplemented with 7.5%/kg Jackfruit seed meal (T<sub>4</sub>). Individual live body weight gain and feed intake were recorded at weekly interval.

#### Results and Discussion

##### Growth performance

**Feed consumption (g/week):** In present investigation total feed consumption, the average feed consumption at first week of age for T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub> and T<sub>4</sub> was 78.5, 78.56, 78.26 and 78.4 gm/bird, respectively.

The average feed consumption at 12<sup>th</sup> week of age for treatments T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub> and T<sub>4</sub> was recorded 626.6, 625.86, 626.33 and 622.63 gm/bird, respectively.

The results of current investigation are having lower values for daily feed consumption as compared to results obtained by Eburuaja *et al.* (2017) [3] who investigated on effect of toasted jackfruit (*Artocarpus heterophyllus*) seed meal (TJSM) on performance of 120 birds, 2 weeks old broiler chickens and they observed that mean daily feed intake (g/bird/day) T<sub>1</sub> (control) 73.75, T<sub>2</sub> (5% toasted Jackfruit seed meal) 72.44, T<sub>3</sub> (10% toasted Jackfruit seed meal) 71.42 and T<sub>4</sub> (15% toasted Jackfruit seed meal) 71.59, respectively.

### Body weight

In the T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub> and T<sub>4</sub> treatments, the average day old weights of the chicks were 36, 34.8, 36.4 and 35.2 g, respectively. From the statistical analysis it was observed that weekly live body weight in treatment T<sub>2</sub>- 2270.2 g/bird was significantly ( $p<0.05$ ) higher than other treatment groups followed by, T<sub>3</sub>- 2044, T<sub>4</sub>- 2013.8 and T<sub>1</sub>-1908.2 g/bird and treatment T<sub>2</sub> was significantly superior than other treatments T<sub>1</sub>, T<sub>3</sub> and T<sub>4</sub>, respectively. It was revealed that nutrient contents in different levels of Jackfruit seed was responsible for increased in body weight of T<sub>2</sub> and treatment T<sub>3</sub> and T<sub>4</sub> showed decreasing body weight because in Jackfruit seed contains anti-nutritional factors likes tannins, saponins, phytates and oxalate which would have constituted a hindrance to bio availability of nutrients for the birds.

In present investigation it was observed that with increase in Jackfruit seed meal there was decrease in body weight. Similar results were reported by Ndyomugenyi *et al.* (2008) [5] and Eburuaja *et al.* (2017) [3]. They observed that effect of toasted jackfruit (*Artocarpus heterophyllus*) seed meal (TJSM) on performance of 120, 2 weeks old broiler chickens reported the most probable explanation for the observed depressed performance in birds fed diets 2, 3 and 4 which was the inclusion of Jackfruit Seed Meal (JSM) in the diets. They observed that mean weekly live body weight g (g/bird) T<sub>1</sub> (control) 1633.33, T<sub>2</sub> (5% toasted Jackfruit seed meal)

1333.33, T<sub>3</sub> (10% toasted Jackfruit seed meal) 1116.67 and T<sub>4</sub> (15% toasted Jackfruit seed meal) 1000.00, respectively. The anti-nutritional factors in the toasted jackfruit seed meal might not have been removed completely with this processing method i.e., toasting. Raw JSM contains anti-nutritional factors tannins, saponins, phytates and oxalate which would have constituted a hindrance to bio availability of nutrients for the birds.

### Body weight gain

According to the findings, day old chicks in the treatment groups had average initial live weights of 36, 34.8, 36.4, and 35.2 (g) in T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub> and T<sub>4</sub>, respectively. The average weekly weight gain per bird was 156.01, 186.28, 167.36 and 164.88 g in treatments T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub> and T<sub>4</sub>, respectively.

In present investigation it was observed that with increase in Jackfruit seed meal there was decrease in body weight gain. Similar results were observed by Eburuaja *et al.* (2017) [3] in experiment on effect of toasted Jackfruit (*Artocarpus heterophyllus*) seed meal (TJSM) on performance of 120, 2 weeks old broiler chickens and they observed that mean weekly body weight gain (g/bird) T<sub>1</sub> (control) 1423.33, T<sub>2</sub> (5% toasted Jackfruit seed meal) 1126.67, T<sub>3</sub> (10% toasted Jackfruit seed meal) 906.67 and T<sub>4</sub> (15% toasted Jackfruit seed meal) 793.33, respectively.

### Feed conversion ratio

In the present study, it was shown that the average weekly feed conversion ratios for treatments T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub> and T<sub>4</sub> were 2.63, 2.21, 2.46 and 2.51, respectively. The FCR for T<sub>2</sub> (2.21), in comparison to the other treatments, was noticeably lower. The highest feed conversion ratio was shown by treatment T<sub>1</sub> (2.63), which was substantially different from the other treatments.

Eburuaja *et al.* 2017 [3] reported that the feed conversion ratio (g/bird) T<sub>1</sub> (control) was lower i.e., 2.18 and higher in T<sub>2</sub> (5% toasted Jackfruit seed meal) 2.70, T<sub>3</sub> (10% toasted Jackfruit seed meal) 3.38 and T<sub>4</sub> (15% toasted Jackfruit seed meal) 3.95, respectively.

**Table 1:** Growth performance of Giriraja chickens fed dietary levels of jackfruit seed meal at 12<sup>th</sup> week of age

Parameter (at 12 <sup>th</sup> week of age)	Level of Jackfruit seed meal				SEM
	T <sub>1</sub> (0%)	T <sub>2</sub> (2.5%)	T <sub>3</sub> (5%)	T <sub>4</sub> (7.5%)	
Feed consumption	626.6 <sup>ab</sup>	625.86 <sup>ab</sup>	626.33 <sup>a</sup>	622.63 <sup>ab</sup>	5.90
Live body weight	1908.21 <sup>d</sup>	2270.2 <sup>a</sup>	2044 <sup>b</sup>	2013.8 <sup>c</sup>	11.04
Live body weight gain	156.01 <sup>bc</sup>	186.28 <sup>a</sup>	167.3 <sup>b</sup>	164.88 <sup>bc</sup>	5.16
Feed conversion ratio	2.63 <sup>a</sup>	2.21 <sup>b</sup>	2.46 <sup>ab</sup>	2.51 <sup>ab</sup>	0.08

### Conclusion

From the results of the present investigation, it may be concluded that, the significant increase in body weight was noticed in treatment T<sub>2</sub> birds supplemented with 2.5% Jackfruit seed meal in the basal feed for 90 days trial duration.

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